

# CableScout TV220 TDR Cable Tester for CATV

## APPLICATIONS

Using TDRs in CATV applications is a 25-year-old story with a new chapter in the CableScout<sup>®</sup> TV220. Formerly, TDRs have been complicated and expensive. The CableScout TV220 changes all that. It delivers greater performance, yet is so easy to use that no training is required. This leading edge TDR can test more system bandwidth, find faults that were previously invisible to TDR, and perform one-button testing.

### Testing at Higher Bandwidth

Because the TV220 tests at a higher bandwidth (it uses a 400 MHz acquisition system) than any other TDR, it tests more of your system. This enables users to pinpoint the faults that can cause micro-reflections which can be damaging to digital transmissions. Only the TV220 has the bandwidth to enable you to find problems that may exist only at higher frequencies.

### High SNR

The TV220 also has extremely high signal-to-noise ratio (SNR). Proprietary circuit designs reduce the noise level so that the trace represent real faults, not just noise. Events that were previously difficult or impossible to find are clearly visible (because of the much lower noise) with the TV220. This means that you can clearly see faults further away.

### High Resolution

High-resolution performance allows the TV220 to locate problem components in the customer drop. The TV220 uses a pulse width of 1 ns which means the operator can clearly identify multiple events that are close together. This enables the technician to tell which of two components on a cable is causing the problem, even when they are close together. This is particularly important in trouble drops, because components such as splitters and ground blocks can be very close together.

### TestWizard<sup>®</sup> Testing

But the most innovative feature in the TV220 is TestWizard<sup>®</sup> automated testing and event marking. Now, instead of meticulously setting up the TDR, and then carefully interpreting the meaning of the displayed waveform, you push one button to get a high-resolution, low-noise trace, with the events clearly marked! This means substantial savings in training time and reduced time to get accurate, repeatable measurements.

- ¥ The TDR for Digital Broadband Coax
- ¥ Finds Faults Other Cable Testers Can't
- ¥ Easy to Use & Anyone Can Use It!
- ¥ TestWizard<sup>®</sup> Testing & One-Button Testing
- ¥ Automatic Return Loss Measurements
- ¥ Automatic Multiple Event Marking
- ¥ High-Resolution, Short Pulse Width (1 ns)
- ¥ Rugged Enough to Withstand a 2 Meter Drop
- ¥ Large, Backlit, High-Resolution Display (640 X 440), 7.2 in. Diagonal
- ¥ Internal Memory for 20 Waveforms and Notes
- ¥ Serial Printer Output for Stored or Displayed Waveforms



## The Only TDR for Digital Services

High bandwidth, high resolution, high SNR, and ease of use make the TV220 the only logical choice for digital services. The TV220 tests more of the capacity of your cable, finds faults that are closer to the ends, and finds faults that are closer together than any other TDR available.

## CableScout TV220 Helps Solve Tough Problems

Any TDR can find a break or major problem, but what about those small nagging cable faults that keep your system from running smoothly? CableScout TV220 can find those really tough-to-identify problems, and it's easy (see examples below). A high performance TDR doesn't have to be difficult to use. This one makes even the first time user look like a pro.

## The TV220 – Designed for You

If your job is to maintain or find faults on coaxial cable, the new Tempo CableScout TV220 is built for you.

With the TV220, you'll spend less time operating the instrument, and more time analyzing and repairing faults.

You know the problems we're talking about – the annoying small ones that cause a 3dB notch near the upper end of your bandwidth. Now you can accurately locate them – fast and easy.

You get all this performance in the industry's most rugged TDR package. Come snow, rain, heat, humidity, dead of night, or untrained user, CableScout TV220 keeps working, because you have to.

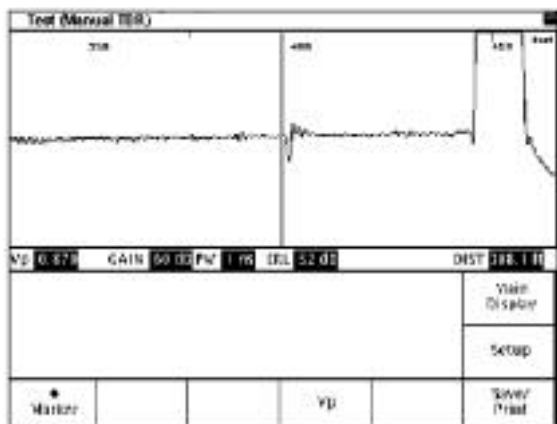
## The Advantage of High Bandwidth and High SNR

The two displays below demonstrate the TV220 advantage.

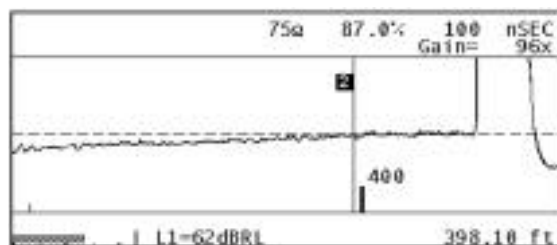
Both traces were taken on the same cable which had a small amount of sheath damage. This

type of damage affects only the performance of the higher channels in a CATV system. The trace on the left (measured with the TV220) clearly shows the

damage located at 398 feet. The second trace on the right (measured with another TDR) doesn't show the event.



TV220 Cable test clearly shows the fault at 398 feet.



Typical TDR test misses the fault completely.

## TestWizard™ Testing: Automatic One-Button Testing

TestWizard™ Testing automatically finds multiple faults on coax cable. There's no longer a need to interpret the results; they're clearly marked. TestWizard testing automatically adjusts and optimizes gain, averaging, and pulse width to provide the best possible resolution while maximizing the instrument's ability to find all the problems on your cable – even small problems missed by most other TDRs. All you do is press the yellow **TestWizard** button, select the cable type, length, and number of events to display; then view the results. If you want to measure the Return Loss of an event, simply jump the cursor to the event, and CableScout TV220 automatically reports the Return Loss. Technicians no longer have to be afraid of erroneous or unreliable results with a TDR. CableScout TV220 with TestWizard testing makes every user an expert!



TestWizard Testing automatically marks faults.

### CableScout TV220 TDR Characteristics

#### OUTPUT

**Test Signal Output** – 1/2 Sine.  
**Amplitude** – 4V into 75 Ω.  
**Pulse Width** – 1 ns, 5 ns, 25 ns.  
**Output Impedance** – 75 Ω.  
**Acquisition System Bandwidth** – 400 MHz.

#### TestWizard TESTING

Automatically marks faults. Operator choice of three levels of event marking:  
 Mark largest event.  
 Mark three largest events.  
 Mark all events.

**Return Loss** –  
 Automatic at cursor location.  
 Resolution: ±1 dB.

**Input Protection** – ±400 VDC + peak AC up to 440 Hz, 30-second duration.

**Maximum Distance Range** – 12,000 ft. (3,658m), depending on cable type and condition.

**Gain** – 0 to 72 dB.

**Waveform Storage** – Minimum of 20 waveforms with notes.

#### Distance Accuracy –

Feet:  
 0 to 2,000 ft.: ±2 ft. ± uncertainty in Vp.  
 2,001 to 6,000 ft.: ±3 ft. ± uncertainty in Vp.  
 6,001 to 12,000 ft.: ±4 ft. ± uncertainty in Vp.

Meters:  
 0 to 610 m: ±0.6 m ± uncertainty in Vp.  
 610 to 1830 m: ±0.9 m ± uncertainty in Vp.  
 1830 to 3658 m: ±1.2 m ± uncertainty in Vp.

#### Display –

Resolution: 640 x 440 (281,600 pixels).  
 Size: 7.2 inch.  
 Type: High contrast LCD.  
 Backlight: Operator switchable.

**Waveform Display Resolution** – 0.33% of selected range, 4.5 cm (0.15 ft.) minimum.

**Display Ranges** – Twelve display ranges from 6 ft. (1.8 m) to 12,000 ft. (3,658 m), plus single-button zoom window.

**Output Port** – Serial 9-pin D type connector.

**Distance Measurements** – Meters, feet, nanoseconds.

## General Characteristics

### ENVIRONMENTAL, EMC, SAFETY

**Temperature –**  
 Operating: -10° C to +40° C (+11° F to +104° F).  
 Non-operating: -20° C to +60° C (-4° F to +140° F).  
**Humidity –** 10% to 95% (non-condensing).  
**Field Usage –** Shock, water, and dust resistant.  
**Durability –** Survives drop of 2 meters (6ft.) to concrete in standard soft case. Drip proof, dust resistant.  
**EMI Emissions –**  
 EN55011, class A.  
 FCC Part 15, Subpart B, Class A.  
 EN60555-2.  
**Safety –**  
 UL3111-1 listed.  
 CAN/CSA-C22.2, No. 1010.1.  
 CE (Low Voltage Directive).

### POWER

**AC Operation –**  
 Voltage Ranges: 110 V, 220 V, or 240 V with appropriate AC to DC adapter.  
 Line Frequency: 50 Hz to 60 Hz.  
**DC Operation –**  
 Voltage Range: 9 to 16 VDC @ 1A (charging and operating).  
**Battery Operation –**  
 Type: Internal lead acid rechargeable battery.  
 Operating Time: Typically 8 hours continuous operation (backlight off).  
**Battery Savers** (user selectable) –  
 Shutoff: 5 to 30 minutes or disabled.  
 Backlight: Shutoff 5 to 30 minutes, disabled, or always on.

### PHYSICAL

Dimensions	cm	in.
Height	24	9.5
Width	30	11.5
Depth	9	3.5
Weight	kg	lb.
Net	3	6.4

### Warranty

One year.

## Ordering Information

### CableScout™ TV220 TDR

**Includes:** BNC-to-Alligator Clips Test Leads, 2m Coaxial Jumper Cable, F-to-BNC Barrel Adapter, F-to-F Barrel Adapter, F-Type to KS Test Adapter, Soft Carrying Case with Shoulder Strap, U.S. AC Adapter/Charger (120 VAC, 60 Hz, 9 V @ 1A), DC Cigarette Lighter Adapter Cable, User Manual, Quick Reference Card, Rechargeable Internal Battery.

#### TV220 OPTIONS

- Option 1C –** Changes Adapter/Charger to 119424000 Universal Euro Adapter/Charger (220 VAC).
- Option 2C –** Changes Adapter/Charger to 119423900 United Kingdom Adapter/Charger (240 VAC).

- Option 3C –** Changes Adapter/Charger to 119423800 Australian Adapter/Charger (240 VAC).
- Option L2 –** Italian language.
- Option L4 –** Spanish language.
- Option C3 –** Three Years Calibration Service
- Option C5 –** Five Years Calibration Service
- Option D1 –** Test Data Report
- Option D3 –** Three Years Test Data (requires Option C3)
- Option D5 –** Five Years Test Data (requires Option C5)

#### TV220 OPTIONAL ACCESSORIES

- Hard Travel Case –** 016121000.
- PC Software for TDR –** MCTAP.

